

### Remarks

The Office Action dated July 5, 2007, has been carefully reviewed and the foregoing amendment and following remarks have been made in consequence thereof.

Claims 1-25 are pending in this application. Claims 1-25 are rejected. It is respectfully submitted that the pending Claims define allowable subject matter.

The rejection of claims 1-25 under 35 U.S.C. § 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention is respectfully traversed.

Applicant respectfully traverses the finding in the Office Action that Claims 1-25 should be rejected because "random variables" such as "p", "nth", "m", and "mth" are not defined. Specifically, Applicant respectfully submits that the above variables are not "random variables" within the mathematical meaning of the phrase as used in the application. Rather the above are "variables" which are symbolic representations denoting a quantity or expression. Applicant respectfully submits that the use of variables in the specification and claims section of a patent application is standard practice. For example, the specification at Paragraph 43 recites in part that "[i]n 561, a determination, whether p sets or an nth set is to be transported is made". Applicant respectfully submits that one skilled in the art will understand that the variable "p" refers to a quantity of sets to be transported and that the "mth" variable defines an additional set is also to be transported. As such, Applicant respectfully submits that one skilled in the art would recognize that any such variable is associated with a respective integer value.

For example, Claim 1 recites a method that includes "filling a first set of p timeslots with p sets of data, whereas Claim 9 recites "selecting p timeslots". Claims 1 and 9 each particularly point out and distinctly claim the subject matter of the invention. For example, with respect to Claim 1, those skilled in the art understand that the variable "p" is a variable representing a quantity of timeslots which are then filled with "p" sets of data which indicates that whatever quantity of timeslots are identified, each timeslot is filled with a respective set of data. Moreover, Claim 9 recites that "p" timeslots are selected, indicating that the quantity (p) timeslots selected in Claim 9 is equal to the set of "p" timeslots and "p" sets of data described in Claim 1.

Regarding Claim 12, Applicant respectfully traverses the assertion in the Office Action that the phrase "a uniform search" is unclear. The specification at Paragraph 63 recites in part "[t]he uniform search for the second route is performed by executing the program stored within the connection memory 310 of the space switch 300." Specifically, the specification recites that "[t]he uniform search is performed by determining whether a first time level has less load than loads of remaining time levels within the space switch 300. For example, the uniform search checks whether a time level, within the space switch 300, corresponding to columns  $n$ ,  $n + 32$ , and  $n + 64$  within a  $96 \times 9$  SDF frame output from the input side timeslot interchange 104 to the space switch 300, has a lower number of TVT0.5s than a number of TVT0.5s within remaining time levels of the space switch 300. The uniform search also determines whether the first time level is empty if the first time level has less load than loads of the remaining time levels within space switch." Thus support is provided in the specification for the recitation of "uniform search".

Regarding Claim 24, Applicant submits that Claim 24 is an independent Claim and as such does not depend from any parent claim.

For the reasons set forth above, Applicant respectfully requests that the 112, second paragraph rejection be withdrawn.

Turning to the prior art rejections, Claims 1-5, and 17 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Williams (U.S. Patent No. 6,356,550). Claim 6 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Williams in view of Eyeson (U.S. Patent App. No. 2003/0223568) and Boily (U.S. Patent App. No. 2004/0001454). Claims 7, 10, and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Williams in view of Aicklen (U.S. Patent No. 7,145,867) and Eyeson. Claims 8, 9, 11, 12, and 19-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Williams in view of Aicklen, Eyeson, and Akahane (U.S. Patent App. No. 2001/0050914). Claim 16 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Williams in view of Lappetelainen (U.S. Patent No. 6,693,915). Claims 21-25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Williams in view of Boily. Claims 13-15 are objected to as being dependent upon a rejected base claim.

The rejection of Claims 1-5, and 17 under 35 U.S.C. § 102(e) as being anticipated by Williams (U.S. Patent No. 6,356,550) is respectfully traversed.

Williams describes in Figure 211 a known SONET frame having a predefined format of nine columns and ninety rows. The predefined format includes timeslots that are associated with each facility signal. Moreover, Williams describes that known SONET frames are divided into virtual tributaries (VT) where each VT is associated with a signal having a predefined transmission rate. For example, Williams describes in Figure 2 that timeslots within the standard frame may be allocated to transmit a signal having a bit rate of 3.456 Mbps. To accomplish this, Williams further describes that known frames allocate 6 columns and nine rows to accommodate this type signal. As shown in Figure 211, two VT3's labeled M and N are illustrated wherein the VT3's are interleaved among themselves for transmission. As such, Figure 211 does not describe or suggest that the frame includes overflow timeslots allocated to the VT3's, rather Figure 2H describes that a standard VT3 M or N allocates six columns to transmit a signal having a bit rate of 3.456 Mbps and each of the six columns is utilized to accommodate this signal without utilizing an overflow column. As such the label "M" does not describe an overflow column as suggested in the Office Action, rather the label "M" as used by Williams describes a known virtual tributary utilized to transmit a signal having a bit rate of 3.456 Mbps.

Claim 1 recites a method for switching multi-rate communications within a communications format comprised of frames, each frame having multiple timeslots. The method includes obtaining a first data collection comprising m sets of data, allocating p timeslots from a frame to the first data collection, where p is less than m, providing at least one overflow timeslot from the frame for use with different data collections, filling the p timeslots with p sets of data from the m sets of data within the first data collection, and loading the at least one overflow timeslot with at least one overflow set of data from the m sets of data within the first data collection.

It is respectfully submitted that Williams does not describe or suggest the method recited in claim 1. Specifically, Williams does not describe or suggest allocating p timeslots, from frames of the communication format, to the first data collection, where p is less than m, and loading at least one overflow timeslot with at least one overflow set of data from the m sets of data within the first data collection.

Rather, as discussed above, Williams describes allocating  $p$  timeslots, from frames of the communication format, to the first data collection, where  $p = m$ . Williams does not describe or suggest an overflow timeslot or loading a portion of the  $m$  set of data into the overflow timeslot. Accordingly, claim 1 is submitted to be patentable over Williams et al.

Turning to the dependent claims, Williams fails to teach or suggest each and every limitation included in the dependent claims. Additionally, Claims 2-16 depend from Claim 1, Claims 18-20 depend from Claim 17. Claims 22 and 23 depend from Claim 21, and Claim 25 depends from Claim 24. Consequently, since Claims 1, 17, 21, and 24 define allowable subject matter, Claims 2-16, 22, 23, and 25 define allowable subject matter.

With respect to Claims 2-5, Claims 2-5 depend directly from independent claim 1. When the recitations of claims 2-5 are considered in combination with the recitations of claim 1, Applicant submits that dependent Claims 2-5 likewise are patentable over Williams.

With respect to Claims 6-12, Eyeson describes a WAN network that includes a remote switch 102, a remote switch 108, and a single timeslot interchange 206 that provides a mechanism for interexchanging time slots on local bus 225 and MPU bus 204. Eyeson does not describe or suggest a system that includes at least two timeslot interchanges coupled to at least one space switch, different first and second routes exist via the at least two timeslot interchanges and the at least one space switch. Rather, Eyeson describes a system that includes a single timeslot interchange 206.

Boily describes that during a second frame immediately subsequent to the first frame, cross-connect stage 28 places the appropriate data for each output timeslot 20 into an appropriate location 48 in part 32A of egress buffer 32. The information in connection lookup table 40 indicates the location in ingress buffer 30 which will be the source for data to be output in timeslots 20. Some output timeslots 20 may contain data from the same source. It is not necessary that all timeslots 20 receive data from ingress buffer 30. In cases where there is an upper limit to the number of connections that system 10 is capable of processing during each frame, system 10 may maintain a count of active locations 48 and signal an alarm if a number of active locations 48 exceeds a threshold.

Boily does not describe or suggest the recitations of Claim 1. Specifically, Boily does not describe or suggest that a capacity of the timeslot interchanges to support a number of connections of the first type and of a second type is exceeded if a connection is routed via the timeslot interchanges. Rather, as discussed above, Boily describes placing appropriate data from a timeslot 20 into a location 48, and activating an alarm if the number of active locations exceeds a threshold. Moreover, neither Aicklen or Akahane make up for the deficiencies of Williams, Eyeson or Boily.

Accordingly, none of Williams, Eyeson, Boily, Aicklen or Akahane describe or suggest allocating  $p$  timeslots, from frames of the communication format, to the first data collection, where  $p$  is less than  $m$ , and loading at least one overflow timeslot with at least one overflow set of data from the  $m$  sets of data within the first data collection. Moreover, Applicant respectfully traverses the assertion in the Office Action that Williams describes a second data type “N” shown in Figure 211. Applicant respectfully submits that as discussed above, Williams describes a frame that includes two virtual tributaries of the same size, i.e. 6 columns by 9 rows, that are each allocated to receive data of the same type, i.e. a signal having a bit rate of 3.456 Mbps. As such, the labels “M” and “N” used by Williams describe two sets of data of the same type mapped to two separate virtual tributaries in the same frame, wherein each VT has a pre-allocated size to receive the two sets of data. Accordingly, Claim 6 is submitted to be patentable over Williams in view of Eyeson, Boily, Aicklen, or Akahane.

Claims 13-15 are objected to as being depended on a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim. Applicant respectfully submits that Claim 1 is patentable over Williams. Since Claims 13-15 each depend directly from independent Claim 1, Claims 13-15 likewise are patentable over Williams.

With respect to Claim 16, Williams is described above. Lappotetlainen describes that a wireless terminal MT1 is synchronized with the transmission of this access point AP1. The wireless terminal MT1 requests for a connection set-up by transmitting a RACH message to the access point AP1 at a moment of time allocated thereto. The wireless terminal MT1 transmits information for instance on the quality of service desired for the connection and on the connection type, e.g. multimedia connection, data connection, speech connection. The type of the

connection and the quality of service affect for instance the number of time slots TS11-TSIn to be allocated for the connection.

Neither Williams nor Lappetelainen describe the recitations of Claim 1 which recites in part obtaining a first data collection of a first data type, the first data collection comprising m sets of data, and allocating p timeslots, from frames of the communication format, to the first data collection, where p is less than m. Moreover, Lappetelainen does not describe or suggest searching for one of (m-1) timeslots and (m-3) timeslots if the connection is of the first type as recited in Claim 16. Rather, as discussed above Lappetelainen describes that the type of connection and the quality of service affect for instance the number of time slots TS11-TSIn to be allocated for the connection.

Accordingly, Lappetelainen does not make up for the deficiencies of Williams. As such, Claim 16 is submitted to be patentable over Williams in view of Lappetelainen.

Claim 17 recites a method for switching multi-rate communications. The method includes obtaining first, second and third data collections each of the first, second, and third data collections comprising m sets of data, allocating p timeslots, from frames of the communication format, to each of the first, second and third data collection, where p is less than m, providing at least one overflow timeslot, from the frames of the communication format, for use with the first, second, and third data collection, filling the first, second, and third sets of p timeslots with p sets of data from the first, second, and third data collections, respectively, and loading overflow timeslots with an mth set of data of the first data collection, an mth set of data of the second data collection, and an mth set of data of the third data collection.

As discussed above, Williams does not describe or suggest allocating p timeslots, from frames of the communication format, to the first data collection, where p is less than m, and loading at least one overflow timeslot with at least one overflow set of data from the m sets of data within the first data collection. Additionally, Williams does not describe or suggest loading overflow timeslots with an mth set of data of the first data collection, an mth set of data of the second data collection, and an mth set of data of a third data collection.

Rather, as discussed above, Williams describes allocating p timeslots, from frames of the communication format, to the first data collection, where p = m. Williams does not describe or

suggest an overflow timeslot or loading a portion of the  $m$  set of data into the overflow timeslot. Accordingly, claim 1 is submitted to be patentable over Williams et al. Accordingly, claim 17 is submitted to be patentable over Williams et al.

Claims 18-20 depend from Claim 17. As discussed above, none of Eycson, Boily, or Aicklen make up for the deficiencies of Williams. Accordingly, Claims 18-20 are submitted to be patentable over Williams in view of Eycson, Boily, or Aicklen.

Claim 21 recites a system for switching multi-rate communications. The system includes a time-space switch element configured to receive at least a first data collection having a common first type, wherein the first data collection includes  $m$  sets of data, and a buffer from which  $p$  sets of data of the first data collection are communicated to a first set of  $p$  timeslots and from which at least one overflow set of data from the first data collection is communicated to at least one overflow timeslot, wherein  $p$  is less than  $m$ .

As discussed in Claim 1, Williams does not describe or suggest a first data collection that includes  $m$  sets of data, and a buffer from which  $p$  sets of data of the first data collection are communicated to a first set of  $p$  timeslots and from which at least one overflow set of data from the first data collection is communicated to at least one overflow timeslot, wherein  $p$  is less than  $m$ .

Rather, as discussed above, Williams describes allocating  $p$  timeslots, from frames of the communication format, to the first data collection, where  $p = m$ . Williams does not describe or suggest an overflow timeslot or loading a portion of the  $m$  set of data into the overflow timeslot. Accordingly, claim 1 is submitted to be patentable over Williams et al. Moreover, Boily does not make up for the deficiencies of Williams. Accordingly, Claim 21 is submitted to be patentable over Williams in view of Boily.

Boily, considered alone or in combination, does not make up for the deficiencies of Williams with respect to Claim 21. Accordingly, Claim 21 is submitted to be patentable over the cited art for at least the reasons set forth above.

Claims 22 and 23 depend from independent Claim 21. When the recitations of Claims 22 and 23 are considered in combination with the recitations of independent Claim 21, dependent

Claims 22 and 23 are likewise considered to be patentable over the cited art. Moreover, it is respectfully submitted that dependent Claims 29-33 recite additional features that are neither anticipated nor rendered obvious by the prior art.

Claim 24 recites a system for switching multi-rate communications. The system includes a time-space switch element configured to receive at least a first, a second, and a third data collection, wherein each of the first, the second, and the third data collection have a common first type, and each of the first, the second, and the third data collection include  $m$  sets of data, and a buffer from which  $p$  sets of data from the first data collection are communicated to a first set of  $p$  timeslots, from which  $p$  sets of data from the second data collection are communicated to a second set of  $p$  timeslots, from which  $p$  sets of data from the third data collection are communicated to a third set of  $p$  timeslots, from which an  $m$ th set of data from the first data collection are communicated to a fourth set of  $p$  timeslots, from which an  $m$ th set of data from the second data collection are communicated to the fourth set of  $p$  timeslots, and from which an  $m$ th set of data from the third data collection are communicated to the fourth set of  $p$  timeslots.

As discussed, Williams does not describe or suggest a first data collection that includes  $m$  sets of data, and a buffer from which  $p$  sets of data of the first data collection are communicated to a first set of  $p$  timeslots and from which at least one overflow set of data from the first data collection is communicated to at least one overflow timeslot, wherein  $p$  is less than  $m$ . Rather, as discussed above, Williams describes allocating  $p$  timeslots, from frames of the communication format, to the first data collection, where  $p = m$ . Williams does not describe or suggest an overflow timeslot or loading a portion of the  $m$  set of data into the overflow timeslot. Accordingly, claim 1 is submitted to be patentable over Williams et al. Moreover, Boily does not make up for the deficiencies of Williams. Accordingly, Claim 21 is submitted to be patentable over Williams in view of Boily.

Boily, considered alone or in combination, does not make up for the deficiencies of Williams with respect to Claim 24. Accordingly, Claim 24 is submitted to be patentable over the cited art for at least the reasons set forth above.

Claim 25 depends from independent Claim 24. When the recitations of Claim 25 are considered in combination with the recitations of independent Claim 24, dependent Claim 24



likewise is considered to be patentable over the cited art. Moreover, it is respectfully submitted that dependent Claim 25 recites additional features that are neither anticipated nor rendered obvious by the prior art.

In view of the foregoing amendments and remarks, all the Claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

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